Idaho Standard Method of Test for

Determining the Percent of Coated Particles in Bituminous Mixtures

Idaho IT-96-98

1. Scope

1.1. The intent of this test is to establish a length of mixing time for the operation of a bituminous mixing plant. The method is based on the premise that the coarse aggregate is the most difficult and last to coat with asphalt. The aim is the least mixing time cycle that will produce a mix in which a minimum of 95% of the coarse aggregate particles are completely coated and all other specifications are satisfied.

2. Apparatus

2.1. Sieves – One (1) or more box-type screens of the size required for the mix.

2.1.1. For 1/2 in. (12.5 mm) maximum size aggregate, a No. 4 (4.75 mm) screen may be used.

2.1.2. For 1/2 to 1 in. (12.5 to 25.0 mm) maximum size aggregate, a 3/8 in. (9.5 mm) screen may be used.

2.1.3. For plus 1 in. (25.0 mm) maximum size aggregate, a 1/2 in. (12.5 mm) screen may be used.

2.2. Sample pan or trays.

2.3. Sample scoop or shovel.

2.4. Several sheets of manila paper, approximately 24 in. x 36 in. (600 mm x 900 mm).

2.5. Flood lamps, if required.

2.6. Stiff wire brush.

2.7. Small spatula.

2.8. Solvent and cleaning rags.

3. Procedure

3.1. Permit the plant to operate at an established mixing time per batch (timed by stop watch).

3.2. Take a sufficiently large sample to obtain a coarse fraction count of from 200 to 500 coarse particles. This will generally require from 5 to 8 lb. (2.5 to 4 kg) of plant mix.

3.3. Three (3) separate samples shall be obtained from material produced under identical conditions, immediately after discharge from the pug mill.

3.4. Sieve the samples immediately, while they are still hot, through the proper size sieve. Do not overload the sieves. If necessary, sieve each sample in two (2) or three (3) operations. Shaking should be reduced to a minimum to prevent coating of uncoated particles.

4. Calculations

4.1. Spread the coarse particles on a sheet of manila paper and very carefully examine each particle. Any particle that has a spot (even pinpoint size) which is not coated, is counted as uncoated.

4.2. Group the counted particles, placing the uncoated ones on one side and the coated ones on the other side.

4.3. Counting in normal daylight is the best, but a flood light may be used if necessary.

4.4. The percentage of coated and uncoated particles is obtained by dividing each group by the total number of particles.

5. Report

5.1. In all samples, the number of coated particles must be 95% or above. If the count is below 95%, the mixing time shall be increased in increments and additional counts made until the count rises to 95% or more.